# FAA | AVIATION NEWS

NOVEMBER 1965

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# FAA | AVIATION NEWS

F E D E R A L  A V I A T I O N  A G E N C Y

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**COVER**

In many parts of the country, with good thermal weather gone, glider pilots are making their final flights of the season before starting to work their sail planes into top shape for next year.


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# THOMAS REPORTS ON GROWTH, CHANGES IN GENERAL AVIATION

The growth and changes in general aviation were reviewed last month by FAA Deputy Administrator David D. Thomas when he addressed the Aircraft Owners and Pilots Association in Las Vegas, Nev.

Thomas pointed out that in addition to the increase in total numbers reflected by the various measuring sticks used to gauge growth in aviation activity, "there has been a shift to larger, faster, and more expensive aircraft."

Thomas said that back in 1960, the general aviation fleet totaled some 69,000 active aircraft. Today, it is about 92,000. While the total fleet increased in this five-year period about 33 per cent, the number of multi-engine planes increased nearly 90 per cent. During the same time, the number of single-engine four-place planes increased 75 per cent.

The seven leading manufacturers of small aircraft delivered nearly 5,800 units through July of last year. For the same period this year, Thomas said, the figure was nearly 7,400 units. Last year's total production of these manufacturers reached some 9,300; the Agency expects approximately 11,000 this year.

### More Pilot Certificates Issued

Thomas said that the pattern of aviation growth is also evident in pilot certificates and he compared the first six months of 1964 with the same period in 1965. Statistics indicated a 16 per cent increase in the number of student pilot certificates issued, a 30 per cent increase in the total number of private pilot certificates issued, and a 42 per cent increase in the number of commercial pilot certificates.

General aviation flying hours have increased about 23 per cent from 1960 to 1965. During the same period, the number of general aviation IFR aircraft handled by FAA controllers at centers has increased about 80 per cent. This same 23 per cent increase in hours flown was accompanied by an increase of some 60 per cent in the number of general aviation operations at FAA towers.

Thomas explained how new dimensions of general aviation have also affected the accident picture. The over-all accident rate has actually shown some very slight improvement—from about 36.5 accidents per 100,000 hours in 1960 to 32.3 in 1964. But the rate of *fatal* accidents has remained the same for the last six years. Given the increase in flying hours, this has meant a slow steady increase in the number of fatal accidents—from 429 in 1960 to 501 in 1964. The number of fatalities is up from 787 in 1960 to an all time high of 930 in 1964.

FAA Deputy Administrator David D. Thomas addressed the hangar flying session at the AOPA clinic last month. Left: Joseph Tippets, FAA Western Region; right, Max Karant, AOPA vice president.

### FAA Takes Action

"We in the FAA think something must be done about this," he said, adding that FAA has sought the services of the Flight Safety Foundation to assist in a program of pilot education (*FAA Aviation News*, August and September 1965). "Our objective in this year-long program is to persuade general aviation pilots to upgrade their flight proficiency and knowledge. We are hopeful this will improve general aviation's safety record. The fact is that lack of pilot proficiency and procedural knowledge was behind 80 per cent of the more than 5,000 general aviation accidents last year." The Flight Safety Foundation will be working with more than 11,000 organizations and leading aviation personnel.

Thomas said that the FAA took another step in its general aviation safety effort in September by putting a two-year limit on flight instructor certificates. He said that before the Agency renews a flight instructor certificate, it will require the flight instructor to demonstrate to the FAA his proficiency and knowledge in both teaching techniques and piloting skills. This will insure that flight instructors maintain their qualification and will also provide FAA inspectors an opportunity for upgrading and standardizing flight instruction.

In another move, he said, the FAA has taken steps to insure that general aviation pilots have the necessary skills to handle modern high performance aircraft. The new pilot rating regulations, which will require that a pilot be qualified to serve as pilot-in-command of an aircraft which handles differently from those in which he learned to fly, were announced by the FAA in September.

### Area Manager Program Commended

During his talk, Thomas explained how the area manager program, which began this fall, would give pilots more precise, better tailored, and quicker service. The program is made up of area offices in each of 18 high aviation activity areas where managers will have the authority to make practically all decisions brought to them by the aviation public.

The FAA area manager will have direct authority in his area over the Agency's four major operating programs—air traffic, flight standards, airway facilities, and airports. In the flight standards programs, he will be responsible for the inspection, certification, and surveillance of general aviation flight operations, as well as for operating methods and maintenance activities.

The area manager concept stems from Project Focus—an FAA organization plan which involved setting up five test offices and putting them to work for six months. The test indicated that the area manager plan would work.

Thomas said that prior to the test, the FAA's experience had been that requests from the field were handled as follows: 16 per cent were processed at what would correspond to an area office level and 84 per cent were handled at the regional level. During Project Focus, the proportions were just about reversed—only 13 per cent of the actions were handled at the higher level and 87 per cent in the area offices.

Another conclusion of Project Focus was equally striking. The actions were handled in far less time under the area manager program than previously. Prior to the test, about 48 per cent of field requests took about a week for processing. During Project Focus, about 66 per cent of all field requests were handled in one or two days.

"The area manager plan," said Thomas, "should succeed. It puts into action the first law of good management—the basic tenet about which all good executives make speeches, and then gulp at the thought of putting it into action. We have simply placed the decision-making process at the lowest possible responsible level."

Thomas concluded his talk by saying that "general aviation continues to flourish and increase. We in the FAA couldn't be more happy."

# RULE CHANGES COVER FLIGHT INSTRUCTION, SOLO FLIGHTS BY STUDENTS

New *Federal Air Regulations* amendments designed to increase the competence of pilots by providing for more effective flight instruction and safer solo operations by students went into effect this fall.

The new procedures involve renewal of flight instructor certificates, increased supervision of student pilots by instructors, and related matters instituted by FAR Amendment 61-18.

Under the new rule, flight instructor certificates issued or renewed since Sept. 26, 1965, will expire in 24 months. Certificates issued before Sept. 26, will expire at the end of the holder's first birth month after September 1966. For example, if an instructor was born during November, his certificate expires Nov. 30, 1966, unless it is renewed before that date.

The FAA urged that all flight instructors apply for renewal of their certificates well in advance of the expiration date to allow for possible delay. FAA inspectors will provide instructors all reasonable assistance and guidance in meeting renewal requirements.

### Methods of Renewal

Certificates may be renewed at any time before they expire provided the instructor shows that he is current and competent to conduct effective flight instruction. He can do this by meeting one—or some combination of—the following:

- Showing a complete and acceptable flight instructor record indicating that he possesses the required qualifications. If this record is used as the sole evidence of qualification, it should show that at least 10 students have been prepared and recommended for pilot certificates or ratings within the past renewal period (or 24 months in the case of the initial renewal), and include evidence that at least 80 per cent of those recommended passed their flight tests on the first attempt.
- If a flight instructor does not meet the above standard because of service as a check pilot, chief instructor, or other activity involving the qualification of pilots, he may have his certificate renewed on the basis of an FAA inspector's personal acquaintance with his performance. This will be based on personal observation of his training or checking procedures, checks of his students, the safety record of his trainees, or the satisfactory completion of special flight instructing assignments, such as the conduct of pilot and flight instructor refresher clinics.
- The certificate may be renewed, at the discretion of the inspector accepting the application, if the instructor successfully completes within 90 days a flight instructor refresher course conducted by —or under the sponsorship of—a certificated pilot flying or ground school, an aviation organization, a state aeronautics commission, or an educational institution. Such a course must have included at least 24 hours of ground and/or flight instruction, including an evaluation of each graduate's achievement during the course. In view of the 90-day limitation on the acceptance of such courses, it should be noted that a certificate may be renewed at any time before it expires.

Any applicant may be required to complete all or any part of the test required by FAR 61.173 and described in the *Flight Instructor Practical Test Guide*. A practical demonstration of qualifications will be required for every applicant who is unable to qualify under any of the above. A practical test will be required in every case when the inspector has reason to believe that it will serve to correct some element or phase of the instructor's performance, regardless of other qualifications presented. The renewal demonstration may also be used to introduce new instructing procedures or pilot requirements to flight instructors.

### Student Pilot Flights

The Sept. 26 deadline also requires flight instructors' endorsements, in addition to student pilot certificate endorsements, for any student pilot solo flight and for any student solo cross-country flight.

For any solo flight, the student pilot must have a logbook endorsement by a flight instructor certifying that he has been checked and found competent to solo the category of aircraft involved within the preceding 90 days.

For any solo cross-country flight, the student pilot must have a logbook endorsement by a flight instructor certifying that he has checked the student pilot's preflight preparations, equipment, and planning for each solo cross-country flight and found them to be adequate in consideration of existing circumstances. A separate endorsement is required for each trip.

### Logbook Endorsements

A student pilot may obtain a logbook endorsement by a flight instructor for repeated solo flights over a specified course of not more than 50 miles in length. Such an endorsement may be given after the instructor has given flight instruction both ways over the course concerned, and take-offs and landings at both landing areas involved. This provision may be used to authorize student solo flights from remote airports or private strips to an airport where flight instruction and instructors' endorsements are regularly available.

A student pilot who has the aeronautical experience required for a private pilot certificate—including the prescribed instruction, solo flight time, cross-country time, radio and instrument indoctrination, and flight test preparation—may obtain a logbook endorsement from a flight instructor. The endorsement would certify that the pilot is considered competent to make solo flights without mandatory periodic flight checks. A student pilot meeting the same experience qualifications may be given an endorsement relieving him from a flight instructor's clearance for each solo cross-country flight.

## McKee Lauds National Airspace System, Men Who Operate It

FAA Administrator William F. McKee at the podium with ATCA Executive Director Joseph A. Gascoigne.

FAA Administrator William F. McKee chose the Air Traffic Control Association convention as the setting for his first major address since taking over the reins of the Agency.

In his talk in Los Angeles last month, McKee lauded the National Airspace System and the men who operate it. He spoke of the high hopes the Agency has for the new semi-automated system and told the controllers that "this powerful tool will assist you in your search for more precise and more secure control of aircraft."

## MRS. QUARLES IN NEW FAA POST

Mrs. Donald A. Quarles has been named special assistant for women's aviation activities in the FAA's Office of General Aviation Affairs.

## Rules Covering Sport 'Chutists Under Study by FAA this Month

A public hearing to consider revisions to sport parachute jumping rules is being held in Washington this month.

The Air Transport Association of America and the Air Line Pilots Association both advocate changing parachute jumping regulations (Part 105, *Federal Aviation Regulations*) by restricting these activities when performed in controlled airspace and in approved off-airway routes outside of controlled airspace.

Parachute jumping is conducted at several hundred locations throughout the U. S. within both controlled and uncontrolled airspace. It is estimated there are more than 30,000 sports parachutists making over three-quarters of a million jumps annually. The extent of these activities varies greatly at the various sites, from nearly continuous jumping on an organized basis during a large part of the year to infrequent jumping of short duration and limited almost entirely to good weather months.

## Joint FAA-Weather Bureau Tests Seek More Reliable Information

Eight selected major U. S. airports are receiving weather forecasts from a computer located at Suitland, Md., in a joint FAA-Weather Bureau test of more reliable aviation weather information.

The computer, located at the Weather Bureau's National Meteorological Center, generates airport forecasts every six hours for the following airports: John F. Kennedy, New York; O'Hare, Chicago; Friendship, Baltimore; Washington National; Los Angeles; San Francisco; Seattle-Tacoma; and Albany, N. Y.

The computer forecast, known as an "automated probability forecast," predicts cloud heights and visibility for two to seven hours in advance at the eight airports. Aviation forecasters use the automated forecasts as supplementary guidance in preparing their regular local airport forecasts.

To make its forecasts, the computer digests hourly weather observations from 73 selected airports across the country. In addition, it uses prestored information on the climatic histories over the past 10 years for the eight airports which are receiving the forecasts.

The test, which will run through March 31, 1966, is designed to evaluate the potential advantages of using computerized forecasting techniques to meet the need for better aviation weather information.

# PHYSICAL LIMITATIONS ARE TIGHTENED BY AGENCY

FAA has amended regulations governing issuance of limited operation medical certificates to pilots unable to meet Agency medical standards, but who have compensated for their physical deficiencies to insure safe handling of aircraft.

The amendment clarifies rule (Part 67.19, *Federal Aviation Regulations*) to authorize the federal air surgeon to decide whether compensatory evidence may be acceptable in any individual case.

Under the previous language of the rule, problems arose when applicants felt they had a right to attempt to demonstrate their ability to fly safely, regardless of a limiting deficiency. According to the federal air surgeon, some organic diseases or physical handicaps cannot be safely compensated for under any circumstances, and this policy is now incorporated into the rule.

A Notice of Proposed Rule Making to amend Part 67.19 of the FARs was issued on May 1, 1965.

## New Private Pilot Gives Agency Pat on the Back

From KC-135 to *Bonanza*. Retired Air Force General Curtis LeMay with Beech executive William Morgan.

FAA Administrator William F. McKee, while always glad to hear from private pilots, was especially pleased by a letter he received from a flyer who recently received his FAA ticket.

The new man wrote as follows:

"As you well know, I recently graduated from KC-135, C-140, C-131, and other miscellaneous hardware belonging to the taxpayer, to an S-35 Beechcraft *Bonanza*.

"I suppose I suffered to some extent from the same notion that infects a lot of people, to wit, that the FAA is a necessary nuisance and composed of characters that sit around thinking up diabolical plots on how to route you the wrong way, hold you somewhere when you are in a hurry, etc. Perhaps this is a little exaggerated, but you get my point. In any case, I was sure that a new private pilot and another puddle jumper cluttering up the airways would not be welcomed by FAA with any degree of enthusiasm. How wrong I was.

"I have flown over most of the country in the last three months and everywhere I went, whether it was personal contact with your people, or just a radio call, I always got not only what I asked for, but nearly always additional information I could use. Not only did they do the job exceptionally well, but I always left with the feeling that they were glad I came and that my visit had been a welcome break in an otherwise monotonous day.

"In all the 36 years I have been flying there has been very little time for what I call fun flying. Sure, I have enjoyed it, but always there was a mission to fly or somewhere to go, something I had to do —not necessarily what I wanted to do. The *Bonanza* was to be primarily a fun airplane and it has been. I have enjoyed tremendously putt-putting around the country and your people have in no small measure added to that pleasure.

"Having had a little experience in front offices, I'm sure you haven't listened to anything but trouble since you walked in the front door. I just want you to know you have at least one happy private pilot using your airspace. I think your people are doing a fine job and if you have an opportunity to tell them so for me, I would appreciate it.

"Sincerely,
*Curt*
Curtis E. Le May
General, USAF, Retired"

## GUESS WHAT'S FLYING AGAIN?

*United Consultants' UC-1* Twin Bee *amphibian aircraft which recently received its Federal Aviation Agency type certificate is a modified version of the old single engine* Sea Bee, *manufactured by Republic Aviation. Old timers who flew the* Sea Bee *will note how* Twin Bee's *lengthened fuselage and new twin engines with stronger structural supports have changed its performance characteristics.*

# FAA Proposes to Speed Up Mechanic Certification

Faster certification of qualified student mechanics has been proposed by the FAA to speed up their employment by industry after they graduate from FAA-certificated mechanic schools.

A new rule being considered by the Agency would permit a qualified student to take the required oral and practical tests before meeting either the experience requirements or passing the written test. This would make it possible for the student to obtain a mechanic certificate with a minimum of delay after graduation.

To obtain a mechanic certificate now, an applicant must satisfy the experience, knowledge, and skill requirements, in that order. Experience requirements may be met either by graduating from a certificated mechanic school, by showing evidence of at least 18 months of practical experience in either airframe or powerplant mechanic duties, or by at least 30 months of practical experience in both airframe and powerplant duties. To satisfy knowledge requirements, the applicant must pass appropriate written tests. Skill requirements are met by passing appropriate oral and practical tests.

Current rules prohibit the applicant from taking the oral and practical tests until each section of the written test has been passed. The present rules further require that the written test can be taken only after experience requirements are met. Consequently, undue delay occurs in the certification of students of certificated mechanic schools. The student must wait for the written test results before taking the oral and practical tests. If he fails one or more sections of the written test, he must retake and pass those sections before applying for the oral and practical tests. These delays keep the applicant from obtaining timely employment since most employers require a prospective mechanic to have an appropriate mechanic certificate before being considered for a job.

Certificated mechanic schools conduct closely controlled training and students are progressively tested throughout each phase of the course curriculum. Moreover, during the final phase of instruction the student is tested by the school on subjects and projects covered in the appropriate FAA written, oral, and practical tests.

Under the proposed rule, a student with a good record of progress would be authorized by an FAA inspector to take the prescribed oral and practical tests before meeting experience requirements or before passing each section of the written test. However, an authorized representative of the school must show that the student has made satisfactory progress and is adequately prepared to take the oral and practical tests before he graduates.

Comment should be submitted in duplicate to the Office of General Counsel, FAA, Rules Docket, 800 Independence Ave., S.W., Washington, D. C. 20553, by Dec. 13, 1965. The notice, which pertains to Part 65 of the *Federal Aviation Regulations*, is identified as No. 65-25, Regulatory Docket No. 1511.

# Eye Regulations in Force Since 1938 Put Under Ophthalmoscope

Vision requirements for first and second class airman medical certificates would be lowered from 20/50 in each eye before correction to 20/100, under a new rule proposed by the FAA. The Agency is now considering comments on the proposal received last month.

Applicants for either a first or second class medical certificate still would be required to have corrected vision of 20/20 or better in each eye, however. A first class medical certificate is required for an air transport pilot rating and a second class certificate for a commercial pilot license.

The current standard for distant visual acuity has remained unchanged since 1938, despite significant advances in the design and performance of aircraft and in the operating environment. Modern aids to navigation, for example, make near-perfect distance visual acuity less critical.

Past experience with applicants for first and second class medical certificates also supports the case for new standards. FAA presently permits persons with uncorrected distant visual acuity of less than 20/50 to take special tests to qualify for these certificates. The great majority are successful and are issued certificates on an individual basis.

The proposed new rule would relieve both FAA and applicants for medical certificates of the burden of special testing. It also would bring the distance visual acuity standard in line with current operating conditions. The proposed rule also brings the FAA standards on visual acuity into line with the standards specified by the International Civil Aviation Organization.

# PILOT CERTIFICATES UP 22%

A boom in private flying was reported last month by the FAA, which predicted that airman pilot certificates issued during 1965 will exceed the previous high of 117,902 certificates issued in 1957. During the first six months of 1965 the FAA issued 61,744 pilot certificates—an increase of 22 per cent over the same period in 1964.

The greatest number of certificates issued—39,958—were for student pilots. Private pilot certificates numbered 15,568; commercial, 5,316; air line transport, 530; helicopter, 272; glider, 96; other, 4. The total number of pilot certificates held in the United States is expected to surpass the 400,000 mark by the close of 1965.

# MIGRATORY BIRDS
## *hazardous to aircraft*

From Alaska east across the Canadian Arctic to Southampton and Baffin Islands, great flocks of whistling swans and Canada geese gather for their annual migration south.

These birds—which include some of the largest species of migratory waterfowl in North America—represent a potential hazard to aircraft during the fall and spring migrations. They generally fly below 10,000 feet in V-formation flocks.

There have been several fatal accidents and numerous incidents in the past due to aircraft-bird collisions. These have involved not only whistling swans—which average more than 15 pounds—but also Canada geese and such other migratory waterfowl as snow geese, mallard ducks, pintail ducks, and double-crested cormorants.

Pilots are urged to be alert for migrating flocks of swans, geese, and ducks for the next month. *Flights directly below these flocks should be avoided, since waterfowl tend to dive when approached closely by aircraft.*

The FAA urges all pilots to report bird strikes and near misses. A special Agency form has been prepared for this purpose and is available at FAA offices and at many airports. The Air Transport Association has been distributing a similar form to air carrier pilots for four years, and the FAA is now gathing additional information from general aviation pilots and military pilots.

Also, the Agency is making a study on the effects of bird strikes on airframe components, as well as the effects of bird ingestion on aircraft engines. The Department of Interior's Bureau of Sport Fisheries and Wildlife is conducting an extensive biological study for the FAA, including the gathering of additional information on the migratory habits of waterfowl which will permit the issuance of more accurate and reliable advisories on bird movements.

Beginning in mid-October, large formations of whistling swans were reported over Minnesota, Wisconsin, southern Michigan, northern Ohio, western New York, western and central Pennsylvania, and Maryland. These flights should complete their peak period by Nov. 20, as these birds pass to their winter range on Chesapeake Bay and the coastal sounds of Virginia and North Carolina.

In the west, whistling swans congregate for the winter on the Great Salt Lake and on the Pacific Coast from Puget Sound to the northern portion of the San Joaquin Valley in California. First arrivals reached Oregon during the early part of October with the peak period being Oct. 15-Nov. 20.

Canada geese migrate over several broad fronts from their principal nesting areas in western Alaska and northern Canada. These birds winter on the Atlantic Coast, Gulf Coast, Mississippi River (north into Illinois), Great Salt Lake, and the Pacific Coast.

Migratory flights of Canada geese peaked on the Atlantic Coast (Maryland) during the period Oct. 15-Nov. 5 and on the Pacific Coast (California) during the third week in October. In the interior, migratory flights arrived as early as the third week in September and will continue as late as the first week in December.

Like the whistling swan, Canada geese can fly several hundred miles nonstop. The vast majority appear to migrate at altitudes between 3,000 and 8,000 feet although some have been observed as high as 15,000 feet. Western Canada geese average around nine pounds in weight and common Canada geese eight and one-half pounds.

Lesser snow geese migrate from their breeding areas in the Arctic through central Canada and down the Mississippi River Valley to the Gulf Coast. There flights arrived in the northern states in the Mississippi Valley as early as the first week in October and peak in Louisiana and Texas in late October and November.

Greater snow geese migrate almost nonstop from their breeding grounds in the Baffin Island area to winter on Atlantic coastal bays from New Jersey to North Carolina. These flights are heaviest in the bay areas during the months of November and December.

An altitude of 3,000 feet has been estimated for lesser snow geese during migratory flights. Greater snow geese have been reported between 800 and 1,500 feet, and probably go considerably higher. The average weight is about five pounds for lesser snow geese and six and one-half pounds for greater snow geese.

Mallards and pintails were included in the migratory bird alert partly because they are the most common of North American ducks and specifically because they concentrate in very large numbers in the central and western states. Each migration season about 7 million to 15 million ducks pass through the Mississippi Valley and three million to six million use the Central Valley of California. Another two million to three million migrate through the Atlantic Coastal states.

Pintails migrate over a broad front, covering most of the western states. The main flights are through the interior and the Pacific states. These flights began in early September in some states and will continue into December. Average weight of a pintail duck is about two pounds.

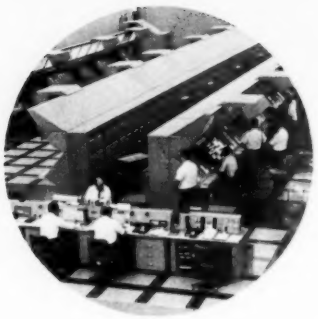
The double-crested cormorant is a large, dark waterbird similar in size and shape to a goose but with very different habits. They average about five pounds.

Cormorants usually migrate from their nesting areas in eastern coastal Canada in flocks of 20 to 200 individuals, following the coastline closely and generally staying below 1,000 feet. They winter on both coasts of Florida.

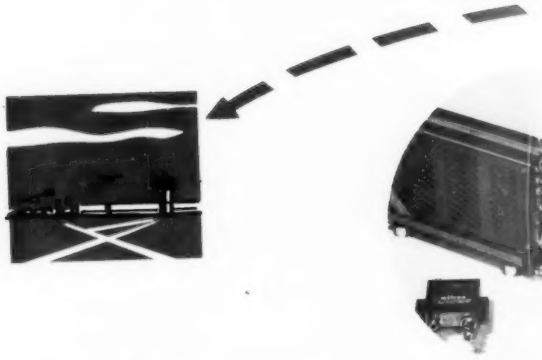
The heaviest movements of migrating waterfowl in the fall occur behind a cold front, often reaching peak intensity about 24 hours after its passage and continuing up to 48 hours if winds remain favorable. During this period, large numbers of birds will be airborne for several hundred miles behind the cold front.

Although the great bulk of the migration of any particular species passes a given point during a period of four to six weeks in the fall, scattered flocks or individuals occur several weeks earlier and later than the peak movement. The timing of the peak movement may be shifted a week or two if unseasonably warm or unseasonably cold weather prevails at the point of origin.

# FLIGHT IN 1970



## NAS is growing up; should mature in next five years



**The year is 1970.** A lot of water has passed over the dam. To you—a pilot—the improvements which have been made in the National Airspace System are clear, if intrusive, reminders of the passage of time. Unlike occasional falling or greying hairs, which can be discounted or rationalized, the semi-automation of the air traffic control system is a here-and-now-thing with which you have reckoned. You have watched it grow from infancy to adolescence in five short years. In another five years it should reach maturity.

But enough of this hangar talk. Since we are both pilots, let's get airborne so you can get a taste of the future. If you'll take the left seat, I'll take the right and act as your guide.

If you remember, the automated National Airspace System (NAS) was first introduced at the Jacksonville, Fla., Air Route Traffic Control Center back in 1967. At that time we called it NAS, Stage A. Of course, we've made several additions since then.

Where to? Well, let me see, what's a good three to four hour flight from Chicago Meigs? How about IFR to Washington National?

Since the flight data processing system is completely automated in the Chicago metroplex, your flight plan is immediately converted to computer language by Joliet FSS. In less than five minutes, a teleprinter in Meigs terminal ejects a card which indicates that your flight plan has been approved as filed. This card is your en route ATC clearance. It contains your "personal" radar beacon transponder code which will identify your aircraft throughout the flight.

At 8 a.m. sharp we're calling the tower for taxi instructions, "IFR to Washington National." Since we already have our IFR clearance, there'll be no hastily scribbled "airways" in the midst of the run-up. Unless a last minute revision is caused by a delayed departure or some other unforeseen factor, we won't have to talk about airways with the tower. It makes quite a difference in the amount of chatter on ground control, doesn't it?

You dial your personal ATC code assignment into the 4096 code, automatic altitude reporting transponder, leaving the transponder on "standby" until starting take-off roll.

**A final check** and we're ready to go. The tower controller gives us an initial heading and altitude and clears us for take off.

Three miles from Meigs we are told to contact departure control—located in the Chicago terminal radar control (TRACON) facility adjoining the Chicago Air Route Traffic Control Center. Departure control immediately advises us that we are in radar contact leaving 2,500 feet and instructs us to climb to cruising altitude and take over upon intercepting V144. The controller did not have to ask us to "IDENT" with our transponder, since no other aircraft in this area is on our personal code. On the controller's radarscope there is a constant readout of our altitude in 100-foot increments as reported by the transponder; therefore, no altitude reports are required of us.

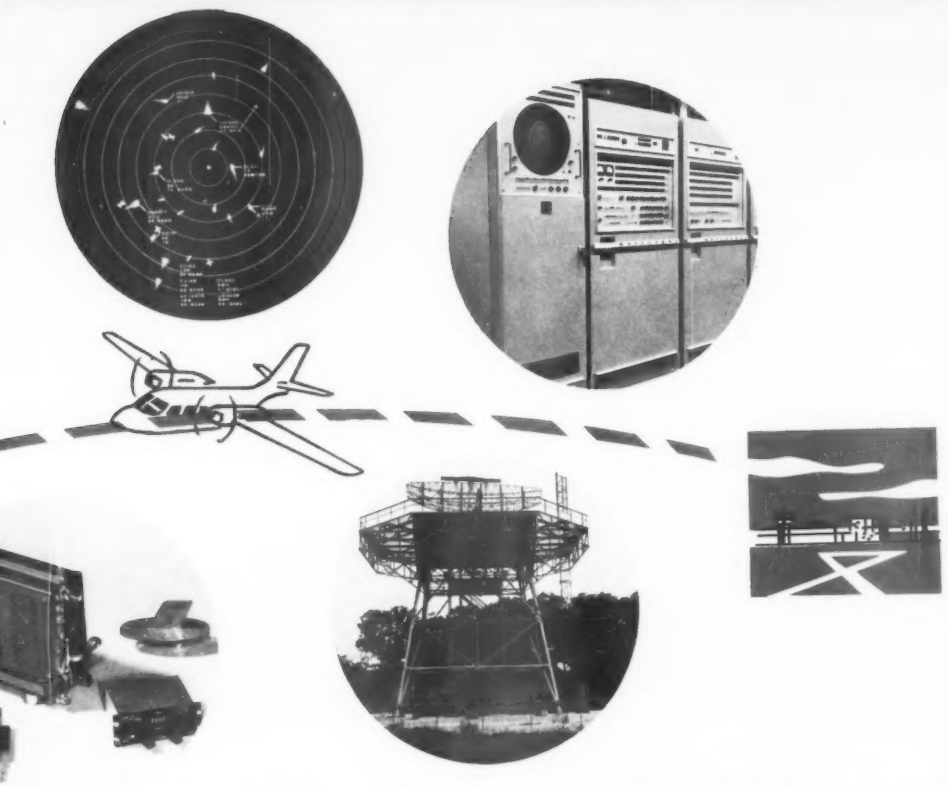
In five more minutes we are told to change to a Chicago center frequency.

Since altitudes are displayed on the controller's radarscopes, we are not given "traffic" unless there is actually traffic—except, of course, in cases where the other aircraft is not being controlled or has no altitude reporting capability.

**Over Cleveland,** concerned about a deteriorating weather situation a few minutes ahead, you ask the center radar controller for late information. He immediately responds with a short weather briefing and suggests a course deviation to skirt an area of light to moderate icing at our altitude 75 miles ahead.

You ask, "How was he able to do that so fast?" Well, also appearing on his radarscope is an automatically updated weather display. Part of it is printed out in message form on a portion of his scope removed from normal traffic flow areas. In addition, he has what we call a "contour weather display." It is a computer generated outline of all significant weather which shows up as a faint outline with coded symbols telling the controller where the weather is and something about its characteristics. Included in the contour display are coded annotations which indicate storm intensity levels, freezing levels, and tops and bottoms of clouds.

**The computer combines** radar weather information, PIREPS, and Weather Bureau data and generates a composite pic-



ture which does not interfere with normal radar display of air traffic. As a result, the controller knows whether you are at an altitude or on a course which may lead you into hazardous weather conditions.

As we change to Washington Center at Grantsville, you ask, "How come we haven't once been asked to change transponder code?" Well, I thought you would never ask me that one! The answer goes right to the heart of the NAS semi-automated system.

Since there are 4,096 possible codes in your transponder, you are able to keep the same code from take-off to landing. But this is only part of the story of this little black box. On the ground we have been handed off quietly and effortlessly from one facility to another across the country with no need for code changes. With 4096 transponders, radar handoffs are made automatically.

Since no other aircraft in the same geographic area is on our code, it is electronically simple for each automation equipped FAA facility to "lock on" to our blip before we enter its control area. Furthermore, there is virtually no way of losing the identity of our aircraft since our discrete code makes our blip a sort of personalized one that is different from all others on the radar scope.

Even if an error should be made and two aircraft were to enter the same area on the same transponder code, the controller would immediately get a warning signal. In this case, he would merely have to change the code assignment of one of the aircraft.

**Leaving Grantsville, Pa.,** the Washington Center controller asks us to descend to 10,000 feet on account of converging traffic westbound on V44. In your mind you may be thinking that this was nothing more than a routine controller decision. You're right. What you may not know is that the automated system had pinpointed the potential conflict some time ago, and had even printed out a suggested resolution of the problem for the controller. Thus, even though the controller would have caught the potential discrepancy in plenty of time, the computer had anticipated it much further in advance and had scanned all other traffic in the area for the solution causing the least inconvenience to both flights.

If by some remote possibility the controller would have delayed too long in resolving the conflict, the computer would have generated a warning signal to remind him. It's like the back-up you have here in the cockpit; seldom-needed but a just-in-case bit of insurance we have built into the system.

While still some distance from the Washington terminal area, ATC advises us to reduce speed, specifying a speed which is still within our cruising range. The center computer has been informed by the computer at the Washington TRACON that we are to receive a five-minute delay at Herndon VORTAC. On the basis of that information, the center computer has recommended a reduced cruising speed to minimize or eliminate the need for us to hold at Herndon.

**Approaching Herndon** you tune into the automatic terminal information service (ATIS) being broadcast over the Washington VORTAC. You listen to the tape recording several times to make sure that you have it all correct and then, based on the ATIS recording, you spend a few minutes reviewing the type of approach and normal handling that you would expect to receive from approach control.

When we are turned over to Washington approach control you are all set for the vector and approach. You advise approach control that you have the "kilo" (ATIS) information, thus avoiding the hurried run-down of all airport information on the already busy approach control frequency.

The automatic terminal information service, which you will recall started back in 1964, has been one of our biggest improvements in high-density areas. FAA controllers are at least as enthusiastic over ATIS as pilots are.

When we leave Herndon you notice that we hit our EAC right on the nose. We have lost exactly five minutes. You're surprised at the accuracy? Well, I can understand that, because EAC's are very difficult to figure in a dynamic traffic situation. But here again automation has come into play. The computer at the Washington TRACON scans all inbound flights, determines the actual landing interval, and, based upon much more knowledge than the human brain can assimilate for instantaneous recall, it is able to come up with a much more accurate projection of EACs. This was one job the controller was glad to shuck off on the black boxes.

You say it sounds like pie-in-the-sky? Well, FAA designers and engineers have such a system well on its way. They aren't just looking through rose-colored glasses either. They have the assurance that most of the equipment is already commercially available.

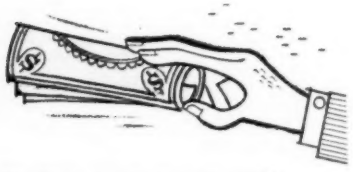
You have seen a few of the ways in which the NAS semi-automated ATC system will make your job easier and safer. But more importantly, we have seen how automation will improve the safety and efficiency of the entire national airspace.

**NAS will accommodate** all users of the airspace. But like today's system, the benefits you derive are somewhat dependent upon the equipment you have in the cockpit. For most aircraft equipped for IFR flight in today's system, you need only add the 4096 automatic altitude reporting transponder and NAS is all yours.

# Mr. Pilot: Can I be a pilot, too?

*As a pilot, many of you probably have found out by now that you occupy a special place in your community. And well you might. There are only about 400,000 of you out of a population of more than 190 million. Because of your unique skill, a good many of your neighbors look upon you with some awe. They also look upon you as a fount of information on a variety of aeronautical subjects. The most common questions asked concern learning to fly.*

*We think the answers to some of these questions were handled candidly and succinctly by The Goodyear Tire & Rubber Co. in a pamphlet titled "The 10 Most Frequently Asked Questions About Learning to Fly." As a service to the readers of FAA Aviation News, we are reprinting excerpts. Single copies of the pamphlet are obtainable without charge from Goodyear, P. O. Box 9278-P, Akron, Ohio 44305.*



**(1) How much does it cost?**

Frankly, learning to pilot an airplane is not cheap. But, then, you probably have already guessed this.

On the other hand, it is not as expensive as you may think. For example, if you are only a moderately avid golfer or bowler, your expenses for just one season probably would come close to covering the cost of obtaining a private pilot license. . . .

**(2) How long does it take to learn to fly?**

Government regulations covering pilot licenses are specific about minimum requirements but, at the same time, leave much to the judgment of the instructor.

For example, the instructor has the say-so when a student can begin to fly solo. When he is satisfied the student can handle the plane safely and knows the appropriate flight rules and regulations, he endorses the student certificate for solo flight. An average student can expect to receive solo endorsement after 8 to 12 hours of dual instruction. . . .

For the private license—the one that permits you to carry passengers and make your own decisions about whether you are proficient enough for a given trip—the FAA rules are specific. To be eligible (from the time standpoint) to take the private license exams you must have a total of at least 40 hours' flight time; of this at least 20 hours must be solo time and of these 20 at least 10 must be longer flights (up to 100 miles or more) from one city to another (they are called "cross-country" flights).

As we said, these are minimums and the average student often requires a bit more.

**(3) Am I too old—too young? Do I have to have a physical examination? Can I fly if I wear glasses?**

While this is several questions, they are all dealing with the single subject of physical requirements. And the answers are: Probably not; yes; and yes—in that order.

Eddie Rickenbacker and Sky King notwithstanding, you do not need to be a superman of any kind to be a good pilot.

There are minimum age requirements—16 for a student license and 17 for a private "ticket"—but nothing in the regulations about a maximum. In fact, assuming continued general good health, advancing

years have little to do with a person's ability to fly safely. . . .

A medical exam, by a private physician designated by the FAA, is required every two years. But it is not a difficult exam and is designed only to insure that the applicant has no physical or medical problems that would interfere with his ability to fly safely. . . .

**(4) Besides reasonably good health, what other qualifications—such as a college education—are there?**

Very few—and a college education is not one of them. . . .

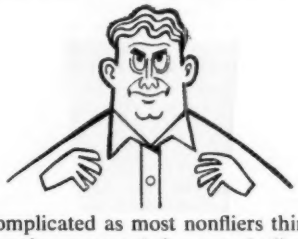
From a practical standpoint, there is some math involved in flight planning and navigation, but nothing very complicated, and a portion of your training will be given to making sure you can work these problems. . . .

Actually—corny as it may sound—the three basic requisites to becoming a pilot (and a good one) are common sense, a desire to learn to fly, and a willingness to stay within the boundaries of both flight regulations and your own piloting ability.

**(5) Is it hard to learn to fly?**

Yes . . . and no! Because there is quite a bit to learn, it will take some time and some concentration. It will certainly require more of you than learning to drive a car, for example.

But what you will need to learn is not especially difficult—not nearly as difficult



or complicated as most nonfliers think—and it can be mastered by practically anyone who is willing to devote just a little effort to it.

An important point is that you will be doing all your learning under the supervision of a highly qualified, licensed instructor. And because flying is taught on an individual basis, the instructor can and will customize the course of instruction to suit you. . . .

**(6) How difficult are the tests?**

There is no test for a student certificate. But before a private license is issued, the student pilot is required to pass two tests.

One is a practical examination of flying ability in which the student takes an FAA examiner for a "ride" and demonstrates that he can handle the plane safely. Frankly, it is a difficult test because no one wants an unsafe pilot endangering the lives of pas-

sengers. But it is not hard to pass the test. The reason is that your instructor will not "sign you over" for the check flight until you are ready for it. As a matter of fact, many instructors put their students through a simulated check flight just to make sure the test can be passed.

The written exam is a long one—and takes up to four hours. You have to know your stuff to pass it. Here again, though, the instructor will do everything he can to make sure you do know, and if you have learned reasonable well you shouldn't have any trouble. It is largely a practical exam in which you will be asked to work out the details—navigation, weather, estimated times, fuel requirements, and the like—for a mythical flight. You will have done it all before in planning the cross-country flights you actually will make—and there are no trick questions. . . .

**(7) How safe is flying?**

The vast majority of pilots—even the "old-timers" with several thousand hours recorded in their log books—have never been involved in a flying accident or mishap of any kind. . . .

**(8) If I can't afford to buy a plane, why should I bother to learn to fly?**

Why not? . . . the vast majority of private flying is done in airplanes the pilots rent at their local airport. And practically every airport today has one or more fixed base operators (as they are called) who are in business of renting airplanes. . . .

**(9) Will my regular insurance cover me when I'm flying?**

That depends—mostly on how old your insurance policies are. In recent years, most insurance companies have not discriminated against pilots by imposing "exclusions" related to flying. . . .

If you have policies 10 or more years old, the chances are there's a clause that excludes private flying from being covered. Often, you can get these clauses written out of the policies merely by requesting it. In some cases, there may be a slight increase in premium. . . .

At any rate, you should check with your own insurance agent. He will be able to tell you how you stand and work out any problems that may exist.

**(10) Do the engines quit often?**

No . . . take the word of the experts—an aircraft engine is a piece of finely built machinery that is specifically designed to keep on running. They virtually never quit.

"Yeah, but what if they do?" you say.

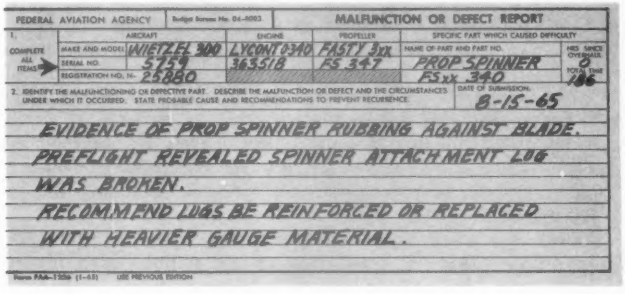
"They won't," the experts will tell you again.

"Yeah, but just in case, what if they do?"

It's simple! You just do what your instructor will have made you practice doing during your lessons; select a good emergency landing site and land. How do you manage that?

You'll have to experience it before you will fully believe it, but an airplane of the size you will be flying becomes an excellent glider when the engine is turned off. . . .

# Looking for Trouble


FEDERAL AVIATION AGENCY — MALFUNCTION OR DEFECT REPORT

1. COMPLETE ALL ITEMS

| AIRCRAFT | ENGINE | PROPELLER | SPECIFIC PART WHICH CAUSED DIFFICULTY |
|---|---|---|---|
| MAKE AND MODEL: WIETZEL 300 | LYCONT O-340 | HASTY Bilt | NAME OF PART AND PART NO.: PROP SPINNER |
| SERIAL NO.: 5159 | 36551B | FS 347 | FSxx 340 |
| REGISTRATION NO. N-: 25880 | | | HRS SINCE OVERHAUL: 0 TOTAL TIME: 106 |

2. IDENTIFY THE MALFUNCTIONING OR DEFECTIVE PART. DESCRIBE THE MALFUNCTION OR DEFECT AND THE CIRCUMSTANCES UNDER WHICH IT OCCURRED. STATE PROBABLE CAUSE AND RECOMMENDATIONS TO PREVENT RECURRENCE. DATE OF SUBMISSION: 8-15-65

EVIDENCE OF PROP SPINNER RUBBING AGAINST BLADE. PREFLIGHT REVEALED SPINNER ATTACHMENT LUG WAS BROKEN. RECOMMEND LUGS BE REINFORCED OR REPLACED WITH HEAVIER GAUGE MATERIAL.

The Federal Aviation Agency is still looking for trouble. And the trouble it's looking for is yours. But it's all for a good cause; it all comes under the heading of interchange of service experience in mechanical difficulties.

FAA would like to receive reports of service difficulties and mechanical defects found on aircraft by pilots, owners, repair agencies, and aviation mechanics. The purpose is to provide a clearing house of service experience to aid in the early detection of mechanical problems.

These difficulties and mechanical defects may be reported to FAA in any manner. A convenient method for doing so is provided by FAA Form 1226 called the "Malfunction or Defect Report." The forms may be obtained free from A and P mechanics, authorized FAA inspectors, repair stations, or any FAA general aviation district office.

FAA's mechanical experts go over the information they receive to see if it has been reported before or if it is a new defect. The information is brought to the attention of aircraft or parts manufacturers, so they may take corrective action or submit comments or recommendations.

Selected items of information received from all sources, including manufacturers, are written up in monthly supplements to the FAA's *General Aviation Inspection Aids Summary*. The summary and supplements are available from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402. The cost is $1.50 per year with an additional 50 cents required for foreign mailing.

The information published in the *General Aviation Inspection Aids* is not intended to be critical of any manufacturer or his product. Rather, it is intended to alert the aviation industry to service difficulties and, when pertinent, to direct attention to the manufacturer's recommended corrective measures.

FAA states that it is essential that all experiences be reported as they occur, even though such information may already exist in the *General Aviation Inspection Aids*. This is needed to accurately determine the scope, complexity, and growth of service conditions.

1 and 2. The pilot receives take-off and landing instructions from the controller in the tower.

*IN LIVING COLOR*

# FAA SLIDE SHOW

**America's aviation community, generally speaking, has a nodding acquaintance with the Federal Aviation Agency. While in some cases the relationship is more intimate, in others—from the Agency's point of view at least—it is too remote.**

A new effort to tell the FAA story to pilots as well as the public is embodied in a 20-minute color slide presentation which the FAA has made available to any suitable group that wants to see it.

The presentation ranges from collector-item shots of the Wright brothers' first flight and Lindbergh with his *Spirit of St. Louis,* to a few charts and graphs which point up the importance of general aviation. For example, more than 97 per cent of the fleet of civil aircraft is classified as general aviation.

"Of course," as the script says, "no plane can be safer than the men who fly, maintain, and support it." Thus a large part of the slide show relates to the nation's airmen, emphasizing the importance of the pilot and the mechanic.

The importance of the National Airport Plan is described along with shots of huge international jetports like Washington's Dulles and Chicago's O'Hare, as well as smaller airports, including the well-known sod strip.

The story of a typical flight is graphically presented with the general aviation pilot visiting his local flight service station, filing his flight plan, and using his radio to talk to FAA controllers in the tower. There are scenes from FAA radar rooms in towers and air route traffic control centers, and shots of navigation aids.

Also included are scenes showing FAA research activities such as test-landing a jet in slush and men scrambling onto a floating raft during a test of water rescue equipment.

The presentation closes with a peek into the future—with the supersonic transport of the 1970s keeping pace with the sun. Passengers and crew can have their continental breakfast in Paris and find the sun is beginning to rise over the Mojave Desert when they sip their morning orange juice in California.

Written to be clearly understood by the general public as well as aviation groups, the slide show is available to various audiences, including business and professional men. In fact, the 20-minute format was determined in part by the time limit established for programs by many civic clubs.

If you would like an FAA representative to put on the slide show in your area, contact your nearest FAA facility which can secure the 77 slides and the script from its regional public affairs office. If necessary, contact your FAA regional public affairs office directly—in New York, Atlanta, Kansas City, Fort Worth, Los Angeles, Honolulu, or Anchorage.

No charge, of course.

3. FAA experts inspect and certificate repair stations that perform the periodic maintenance required for general aviation aircraft.
4. Flight service specialist assists pilots in filing flight plans and provides weather and route information.
5. The general aviation fleet includes float planes used by hunters and fishermen, as well as for family vacations.

*Homestead Hangar*

# Aviation Writer Tries For Full House

"Some people collect stamps; some people collect coins. I collect model airliners."

This is the quick answer Bob Serling gives when he is asked about his collection of some 120 aircraft models. The more complete answer would have to include Serling's long-time, deep-rooted fascination with aviation.

Serling's collection is built from commercial kits which he assembles and paints, but he doesn't dwell upon his skill and workmanship. It's the completeness of his collection that he regards as unique.

It is Serling's goal to put together a collection representing every type of aircraft in every commercial fleet in the world. Some fleets are now almost complete; for example, United and American lack a single plane, a DC-6 in each instance.

Serling revels in the exactness of the models and recalls the time Douglas Aircraft contacted one of the leading commercial model manufacturers to report that Douglas was adding four feet to the fuselage of the DC-8. The manufacturer promptly changed the die so the DC-8 model would conform—a change of only a fraction of an inch and discernible by very few.

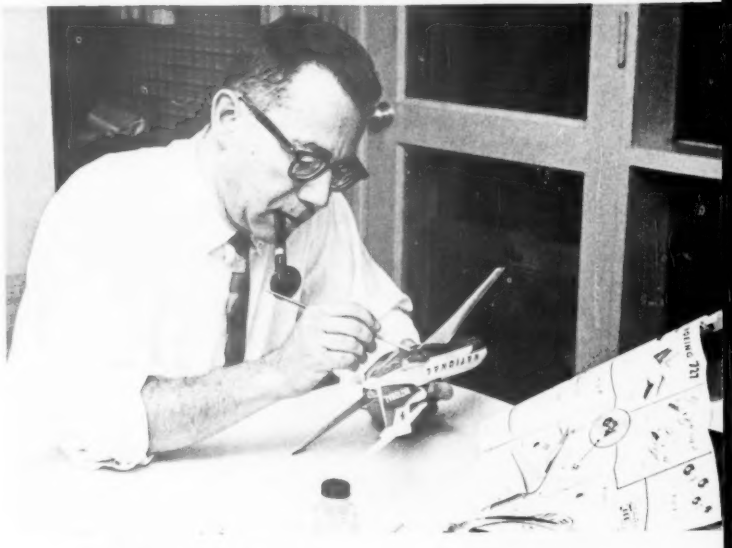
Model makers do not produce every commercial type. For example, there is no model of an Eastern 727, but there is a model of an American 727. Serling solved this by purchasing an extra American 727 and painting it the color of the Eastern fleet. He secured the appropriate decals from an Eastern DC-8 kit, and cut them down to fit the smaller plane.

Serling, who is the well known aviation editor of United Press International, has been a lover of airplanes ever since he can remember. Back in World War II, he was somewhat indignant when assigned to an Army *anti*-aircraft unit, but felt he was serving his cause when he became an instructor in aircraft identification so American gunners would not accidentally shoot down U. S. planes.

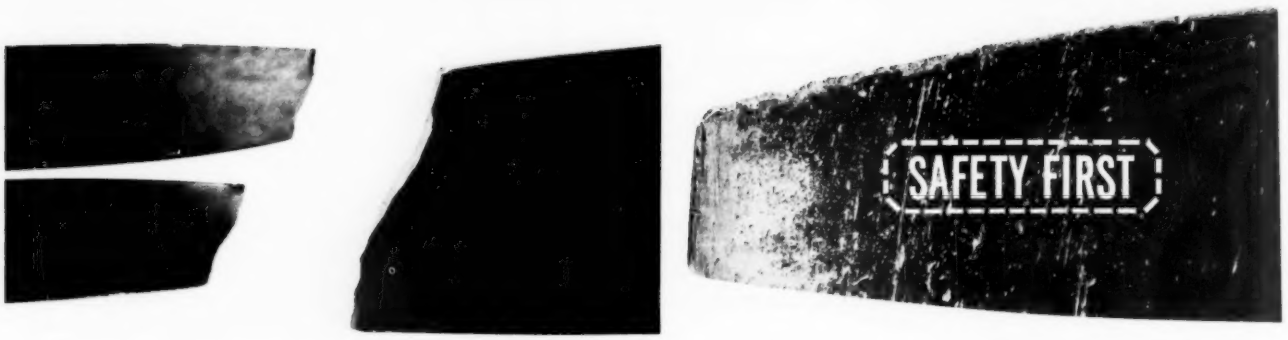
After joining the United Press Washington staff in 1945, Serling sought aviation assignments and finally, in 1960, he convinced UP to assign him as a full time aviation writer covering the FAA, CAB, air safety conferences, and a myriad of other aviation sources. Since then his facile typewriter and his broad knowledge of aviation have won him many aviation writer awards. He has also written two books on air safety, including the award-winning *Electra Story*, and is now awaiting publication of his first novel, *The Left Seat*.

Bob also has had a taste of radio and TV writing. One script of which he is particularly fond was prepared when he worked as technical advisor for his brother Rod Serling of "Twilight Zone" and movie fame. It involved a transoceanic airliner which left London for Idlewild in 1962 and became lost in the time barriers. Bob wrote the dialogue between the crew, and the controllers who were living in the pre-Idlewild, pre-radar days of 1939.

Many pilots responded with praise for the script's high degree of authenticity. "Authenticity" is the hallmark of all Serling's work—his news stories, his books, and his model collection.



Top, Bob Serling, surrounded by his fleets of airliners, examines a Ford Trimotor. Center, he gives a final touch to a Boeing 727. Bottom, he makes an adjustment in a general aviation aircraft.




Rock nicks on propeller blades are fair warning of total prop failure caused by metal fatigue.

*Check Your Propeller Frequently, Carefully*

# DAMAGED PROPS SPELL DANGER

When was the last time you looked at your propeller and gave it a careful rather than a cursory inspection? While the FAA doesn't want a report on each examination, it would like to know when you find defects.

Although a high margin of safety is incorporated in the design of modern metal propeller blades, failures still do occur; the increasing number of reported failures is not peculiar to any one airframe, engine, or propeller combination.

You can increase service life and minimize blade failures of metal propellers by:

- Not pushing or pulling on propeller blades.
- Keeping blades clean so cracks, if any, will not be covered with scum or other foreign matter.
- Avoiding running up your engine in areas containing loose rocks and gravel.

When normal forces act on a propeller blade, they cause stresses on the blade which generally run parallel with each other throughout most of the outer length of the blade. When a defect occurs in a propeller blade, a number of these parallel lines of stress tend to concentrate at the point of the defect. Even a small defect, such as a nick or dent, may develop into a crack. A crack causes a greater stress concentration than existed before and has a tendency to spread out. Finally, the entire blade may fail.

Often fatigue failure occurs at a place where previous damage had been repaired. This may be due to the failure actually having started long before any repairs were made. It is also possible that the repairs were made improperly in the first place. Keep in mind, too, that many blade straightenings or blade repitching operations can overstress the metal, causing it to fail.

Service experience indicates fatigue failures usually occur within a few inches of the blade tip. However, failures also occur in the blade near the shank and at the propeller hub, well out of the critical areas. Therefore, no damage should be overlooked.

Blade failure is common enough, and the results are so serious, that great emphasis is placed on the daily and preflight inspections. Whenever defects are found, they should be remedied or the propeller should be replaced immediately. All repairs should be made by qualified personnel.

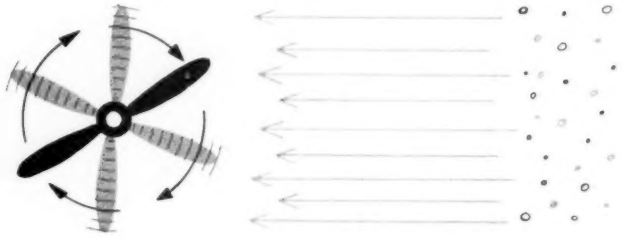
When performing an inspection on the propeller, especially during the preflight inspection, inspect blades completely—not just the leading edge—for erosion, scratches, nicks, and cracks. Regardless of how small the surface irregularity, consider it as a stress riser subject to fatigue failure.

Propeller manufacturers' manuals, service letters, and bulletins specify methods and limits for blade maintenance, inspection, service, and repair. Similar information is available at your local FAA General Aviation District Office.

The FAA, in order to continuously develop improved design data, operational procedures, and maintenance techniques, is now asking owners, pilots, and maintenance personnel to voluntarily report all propeller blade failures. FAA Form 1226, "Malfunction or Defect Report," is a convenient means of supplying the Agency with the desired information. It may be obtained from any GADO.

Information that would be of great value to the FAA includes:

- A brief maintenance and operation history of the airframe and engine, including any incident of sudden engine stoppage due



to the propeller contacting the ground or other objects.

- A complete history of the propeller, including any previous damage, all repairs and alterations, operating time in service since any repairs or alterations have been performed, total operating time, and whether or not the propeller has been used on another aircraft.
- Information relative to any instance of rough engine operation at any time.

On engines which incorporate dynamic dampers on the crankshaft, the wear that has accumulated in the damper and attaching parts may be significant.

Through the combined efforts and cooperation of the FAA and the aviation community, the results of this investigation of propeller fatigue may materially enhance flying safety.

Advisory Circular 20-37, "Aircraft Metal Propeller Blade Failure," is available without charge from the Federal Aviation Agency, Attention: HQ-438, Washington, D. C. 20553.

# Letters

*FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.*

## • Helicopter Instrument Rating

Could you tell me if there is anything new regarding helicopter instrument and helicopter instrument flight instructor ratings? I had heard that something along these lines was in the process of being made into law last spring.

Colt's Neck, N. J.

*Present regulations do not provide for such ratings. However, the Agency is in the process of drafting a Notice of Proposed Rule Making to establish requirements for a helicopter instrument rating and an airline transport pilot helicopter rating with IFR privileges. At this time, there is no estimate as to the date such regulatory changes might become effective. As a part of the regulatory procedure, interested parties will be given an opportunity to study and comment on the proposed action, and their comments will be given careful consideration.*

## • Examination Guides

I operate a ground school for approximately 20 prospective private pilots and have most of the recommended study materials. However, I find it difficult to obtain the standard *Private Pilots Exam Guide* and the latest *Commercial Pilot Exam Guide*. These books were excellent practice exams and I would like to know where I can get them.

Speedway, Ind.

*The material and exercises contained in the* Private Pilot's Handbook of Aeronautical Knowledge *originally were intended as a substitute for the private pilot examination guide. However, numerous requests from the public for a private pilot examination guide have resulted in the development of such a guide which we estimate will be available in about two months.*

*A new* Commercial Pilot Examination Guide *is now being prepared and will be available at a later date. In the interim, the 1962 edition is available for 65¢ from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.*

## • Rockets and Youngsters

As a parent and on behalf of a group of pre-teen and young teen-age boys, I am writing to see if there are any rules or regulations regarding the firing of rockets.

The youngsters have been putting together kits and firing rockets. The models are made of cardboard tubes and balsa wood and some have plastic parachutes. All have a solid fuel engine and are set off by a battery pack.

It is, to my way of thinking, a constructive hobby that is not too noisy or too dangerous, but one that is enjoyed by healthy, active, alert boys.

What regulations are involved and what is your opinion of this activity?

Johnstown, Pa.

*Part 101 of the* Federal Aviation Regulations *prescribes rules governing the operation of: Any unmanned rocket except aerial firework displays and model rockets (1) using not more than four ounces of propellant; (2) using a slow-burning propellant; (3) made of paper, wood, or breakable plastic, containing no substantial metal parts and weighing not more than 16 ounces, including the propellant; and (4) operated in a manner that does not create a hazard to persons, property, or other aircraft.*

*If the rocket is an unmanned rocket within the meaning of the regulation, and not a model rocket, then the regulation prohibits any person from operating it (a) in a manner that creates a collision hazard with other aircraft; (b) in controlled airspace; (c) within five miles of the boundary of any airport; (d) at any altitude where the horizontal visibility is less than five miles; (e) at any altitude where clouds or obscuring phenomena of more than five-tenths coverage prevails; (f) into any cloud; (g) within 1,500 feet of any person or property that is not associated with the operations; or (h) at night.*

*There are other regulations in regard to rocketry contained in the FARs which, we are sure you will realize, are designed to protect the general public on the ground and aircraft in flight. There may also be state or local laws that apply depending on where the rockets are stored, assembled, and operated.*

*We suggest that your local fire marshall or state or local police may be able to help you on this point.*

*We also suggest that youngsters have adequate adult supervision. Some rockets use explosives as a propellant, and misuse can be very dangerous. We have heard of cases where boys have gone beyond the first stages of rocketry and attempted more sophisticated devices beyond their capabilities. The results have been tragic.*

*The National Association of Rocketry, 11 West 42nd Street, New York, N. Y., is knowledgeable in this field and will welcome your inquiries.*

## • Use of Oxygen

I have read Advisory Circular AC 91-8, *General Operating and Flight Rules*, and would like to comment on this report. It appears that different departments within the FAA have varied opinions as to the altitude at which oxygen should be used.

During the past few years personnel of the FAA's medical division, and others, have become pretty well convinced that we should recommend oxygen for altitudes of 8,000 feet and above. The recommended altitude of 12,000 feet is, I believe, a little too high for the average John Q. Public to begin the use of oxygen.

I do realize you are talking about the air taxi and commercial operation program, but the air taxi people I know are all beyond the ages of 40 and 50 years. Therefore, I believe the 12,000 foot recommendation should be changed to 8,000 feet, as we are talking about people who normally do not have the opportunity to be personally fitted with a good oxygen mask. Many of them are still flying around with only a tube in their mouths, which is very inefficient unless there is an extremely high flow of oxygen.

El Segundo, Calif.

*AC 91-8 applies to all private pilots.*

*The Office of Aviation Medicine has recommended use of oxygen at 8,000 feet in certain cases involving persons who have previously experienced coronary occlusion. In cases where an individual has petitioned for re-issuance of his medical certificate upon recovery from a heart attack, limitations have been imposed requiring supplemental oxygen when operating above 8,000 feet.*

*Based upon extensive research and sound medical opinion, it has been determined that a measurable deterioration in alertness and mental efficiency is likely in a normal person at 12,000 feet without the use of supplemental oxygen. During night operations, or operations involving intense mental or physical efforts, it is suggested that supplemental oxygen be used at a lower altitude. Accordingly, the forthcoming* Aviation Medical Handbook for Pilots *will contain this information.*

## • Spoilers

The use of spoilers referred to in your recent article on "Tie Down Your Aircraft" is an especially good suggestion, but I think that anything that requires as much advance preparation as the "spoiler boards" and sand bags you describe might be relegated to the file of good ideas which are never put into practice.

In tying down sailplanes, which are especially vulnerable tc wind because of their light weight and huge wing span, we find that two or three old rubber tires placed on each wing make very effective spoilers. They have the advantages of being easily available, inexpensive, requiring no elaborate preparation, are light in weight, do not damage the wing surface, and do not need painting or storing to preserve them. Surprisingly, they do not blow off, at least in my experience.

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*Thank you, doctor. FAA's tie-down expert finds no fault with your suggestion.*

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